

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY



(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 29 JUL 2005

WIPO

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Applicant's or agent's file reference RD-ATC-33	FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/GB2004/002589	International filing date (day/month/year) 17.06.2004	Priority date (day/month/year) 17.06.2003
International Patent Classification (IPC) or national classification and IPC C12N15/82, A01H5/00		
Applicant ADVANCED TECHNOLOGIES (CAMBRIDGE) LIMITED		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 12.01.2005	Date of completion of this report 29.07.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Blanco Urgoiti, B Telephone No. +31 70 340- 	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/GB2004/002589

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-20 as originally filed

Sequence listings part of the description, Pages

1-4 as originally filed

Claims, Numbers

1-17 as originally filed

Drawings, Sheets

1/21-21/21 as originally filed

☒ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	16,17
Inventive step (IS)	Yes: Claims	
	No: Claims	1-17
Industrial applicability (IA)	Yes: Claims	1-17
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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Supplemental Box relating to Sequence Listing

Continuation of Box I, item 2:

1. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this report has been established on the basis of:
 - a. type of material:
 - ☒ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☒ in written format
 - ☒ in computer readable form
 - c. time of filing/furnishing:
 - ☒ contained in the international application as filed
 - ☒ filed together with the international application in computer readable form
 - ☐ furnished subsequently to this Authority for the purposes of search and/or examination
 - ☐ received by this Authority as an amendment on
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional observations, if necessary:

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

- D1: ERKKILA M J ET AL: "Allele-dependent barley grain beta-amylase activity" PLANT PHYSIOLOGY, AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS, ROCKVILLE, MD, US, vol. 117, no. 2, 1998, pages 679-685.
- D2: US-A-5 677 474 (ROGERS JOHN C) 14 October 1997
- D3: LAZARO A ET AL: "SIGNAL PEPTIDE HOMOLGY BETWEEN THE SWEET PROTEIN THAUMATIN II AND UNRELATED CEREAL ALPHA AMYLASE-TRYPSIN INHIBITORS" FEBS LETTERS, vol. 239, no. 1, 1988, pages 147-150,

2. NOVELTY (Art. 33(2) PCT)

2.1 The document D1 discloses the genomic sequence (database entry) and organization (see Fig. 2) of an endosperm enzyme from barley. It's 73% identical from nucleotides 426 to 547 to nucleotides 51 to 171 of SEQ ID NO:1 of the present application.

2.2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 16 c) is not new in the sense of Article 33(2) PCT. The same holds for claim 17 as dependent on 16.

3. INVENTIVE STEP (Art. 33(3) PCT)

3.1 Document D2 is regarded as being the closest prior art and discloses constructs for driving an endosperm specific expression. The promoter from barley aleurain is used to drive the expression of a marker gene in transgenic barleys (see example 3). Methods for cloning the promoter regions of known endosperm specific genes are detailed (see column 4, line 49 to column 5, line 25).

3.2 The present application therefore differs from D2 in that a different endosperm

specific promoter from barley is disclosed herein.

3.3 The problem to be solved by the present invention may therefore be regarded as the provision of a further endosperm specific promoter from barley. The solution proposed is the provision of the limit dextrinase inhibitor promoter of SEQ ID NO:1. This solution cannot be considered as involving an inventive step because D3 discloses the cDNA coding for the limit dextrinase inhibitor from barley. The person skilled in the art would have found obvious when trying to clone a further endosperm specific promoter to use the cDNA of D3 and follow the teachings of D2 on how to find the corresponding promoter. Moreover, the sole reason of having a new sequence of deoxyribonucleotides, can not be regarded as inventive. Inventive step could be acknowledge if the specific succession of deoxyribonucleotides imparted some unexpected properties to the molecule which has not been shown here.

3.4 In consequence, the subject-matter of claims 1 to 17 is not inventive in the sense of Article 33(3) PCT

4. REMARK

4.1 Claim 17 saying "A DNA sequence according to claim 14 " has been read as "A DNA sequence according to claim 16" to carry out both the search and the examination.